

Science without Borders: The Open Access Revolution in Science Communication

The publication and dissemination of scientific ideas and discoveries provide the foundation for future progress in science and medicine and stimulate beneficial applications of scientific knowledge. The more freely accessible new research discoveries are, the greater their value to scientists, doctors, educators, and the public.

The panel will discuss why and how open access advances scientific ideas and discoveries, what benefits open access brings to the public, and how this revolution in science communication is taking place. The symposium will offer a platform for audience participation in a collective discussion regarding the future prospects of open access communications.

Open Access – The Future of Scholarly Communications

DAVID PROSSER, Director, SPARC Europe, Oxford, UK

The internet has touched and affected many areas of life. For researchers, it has meant that the scholarly literature can potentially be accessed at the desk or bench-top. However, ever increasing journal subscription prices and restrictive licensing deals are needlessly limiting the dissemination of research results and minimizing the impact of new discoveries. Open access is a new model of scholarly communications that harnesses the reach and power of the internet to bring research to all interested readers, while maintaining the essential functions of peer review and quality control. This paper will describe open access, the benefits it brings it readers, authors, and their institutions, and outline some recent developments towards implementation of open access.

David Prosser was appointed the first director of SPARC Europe in October 2002. Previously, he spent ten years in science, technical, and medical journal publishing for both Oxford University Press and Elsevier Science. During this time he was involved in all aspects of publishing from production to editorial and financial management of journals. Before becoming a publisher he received a PhD and BSc in Physics from Leeds University, UK. (david.prosser@bodley.ox.ac.uk)

Publication Costs are Research Costs

ROBERT TERRY, Senior Policy Advisor, The Wellcome Trust, London, UK

The organisations which fund research appear to have been the last to join the debate about opening up access to research literature. However, their involvement may well provide the impetus to change the current restrictive publishing culture and fully unlock the potential of the Internet to improve the efficiency with which research is disseminated. This presentation will explain why open access matters to research funders and the wider public, how a new business model could operate to make open access publishing a viable and sustainable activity and what further initiatives funders should be considering.

Robert Terry joined the Wellcome Trust in January 2000 as Senior Policy Adviser in the Trust's Strategic Planning and Policy Unit. He is responsible for co-ordinating the Trust's policy making process, public affairs and the planning functions (corporate and

strategic). He has drafted Wellcome Trust policies on a number of areas including: intellectual property, good research practice, access to bioinformatic resources, the use of animals in medical research and open access initiatives. His previous position was as Head of International Programmes at the Royal Society. His scientific background is in agricultural development, genetics and plant breeding where he has worked previously for ICI and at the Plant Breeding Institute. He has worked in a number of developing countries for the United Nations Association, Oxfam, DfID and Voluntary Service Overseas where he was a manager for the natural resources, health and technical sectors. He has a degree in Botany from the University of Sheffield and an MPhil in Plant Breeding from the University of Cambridge. (r.terry@wellcome.ac.uk)

Becoming an Open Access Publisher

JAN VELTEROP (co-organiser), Publisher, BioMedCentral, London UK

Open Access publishing is the inevitable reaction to the changing circumstances caused by technological progress. Satisfying the communication needs of the science community has never been possible to the same degree as it is now, and from the point of view of a science publisher who sees satisfying those communication needs as his professional mission, Open Access publishing is the logical succession to the subscription publishing model. Logical as it may be, however, that doesn't mean it is a comfortable change: reason, perhaps, why so many traditional publishers resist it.

Jan has a wealth of experience within scientific journal publishing. Throughout the 1990s, he was the Managing Director of Academic Press Limited, where he was responsible for initiating and taking forward the highly successful and innovative IDEAL project, one of the first e-journal initiatives, which now provides thousands of libraries with access to the content of Academic Press journals. He has also held high-profile positions at Macmillan Publishers, where he was the Publishing Director of Nature Publishing Group and President of Nature Inc, and at the Dutch Media Group, Wegener, where he was the Managing Director of one of their newspaper titles. (velterop@biomedcentral.com)

Turning Data into Knowledge: Lessons from Genomics

RICHARD DURBIN, Deputy Director, The Wellcome Trust Sanger Institute, Hinxton, UK

Open release of data was critical not only to the success of the public effort to sequence the human genome, but also to the efficiency with which it was accomplished. In the same spirit, a range of subsequent data resources and projects have been developed, from the Ensembl and University of California, Santa Cruz databases to a series of collaborative functional genomics projects. Finally, the experience in the genome field is that providing open access to results is not only good for science as whole, but also for the individual scientists involved.

Richard Durbin is Head of the Informatics Division and Deputy Director of The Wellcome Trust Sanger Institute. His work focuses on the computational aspects of genome sequencing projects, including theoretical and algorithmic contributions to biological sequence analysis and the development of genome data resources. He has a BA in Mathematics, and a PhD in Biology from Cambridge University, with research experience at Harvard and Stanford Universities, and was elected to be a Fellow of the Royal Society in 2004. Richard's home page can be found at <http://www.sanger.ac.uk/Users/rd>. (rd@sanger.ac.uk)

What will Open Access Do For the Public?

LUISA DILLNER, British Medical Journal Publishing Group Limited, London, UK

Making original research free to everyone includes making it free to the public as well as doctors. Most doctors wouldn't mind this, although many underestimate how much their patients want to know. But will it make any difference to patients? Doctors often don't understand clinical research papers, so will patients? What is important is understanding where a piece of research fits – this is what doctors say they want – compilations of evidence – and this is what patients will most likely want. Will access to research improve health literacy or decision making or communication between doctors and patients? As patients become a larger part of the audience for original research – should researchers change how they write papers? The BMJ has a patient panel that we use to read papers and comment on patient outcomes and also to look at language, such as, why do doctors use words like unilateral?

Dr Luisa Dillner is deputy head of BMJ Knowledge. She trained as a surgeon and has worked at the BMJ for twelve years on both the BMJ itself and evidence based products in the Knowledge department. She was health editor at the Guardian newspaper in the UK for two years and has written for magazines such as Vogue and Cosmopolitan. She started up BestTreatments, an evidence based information source for patients which covers 60 chronic conditions. The site is available on NHS Direct in the UK and is on trial in New Zealand and Norway. (LDillner@bmj.com)

From Reading To.....

BAREND MONS, Associate Professor, Institute of Medical Informatics, Erasmus Medical Center, Rotterdam & University of Leiden Medical Center, The Netherlands

The swelling flood of scientific information will lead to two major trends in scientific discovery: from Reading to consulting and from Reading to meta-analysis. A scientist venturing into a new area during the discovery process should be able to find experts to consult as an integral part of the work-flow. In addition, meta-analysis of all relevant information relevant to the research question under study should be an option. The guiding principle of our approach is that texts and other data sources should be pre-mined for unambiguous concepts, rather than for words or terms. In addition, the semantic relationships between concepts should be used to build semantic knowledge representations. A special emphasis of our recent research was on solving ambiguity problems (mainly synonymy and homonymy) during information mining in large text corpora. This is obviously not a goal in itself and the final aim is to generate validated material for massive meta-analysis of information resources.

Dr. Barend Mons (1957, The Netherlands) obtained his MSc. (1981, Cum Laude) and his PhD. (1986) at the University of Leiden, The Netherlands, majoring in Cell and Molecular Biology. Barend is currently Associate Professor in Biosemantics at the Department of Medical Informatics, Erasmus Medical Center, University of Rotterdam and at the University of Leiden Medical Center. The group in Rotterdam designs advanced systems for meta-analysis of large numbers of scientific papers and other data-resources, such as data bases and annotations of molecules. The aim is to develop methods to master the exploding amounts of information generated by modern genomics and proteomics research and to enable in-silico experimentation. In Leiden, Barend

*applies the technology for post-genomic research. As a spin off, the technology is made available for commercialization on the one hand, but on the other hand, the University, in close collaboration with Collexis and NWO has arrangements in place to make the technology developed at the University and professionalized by Collexis, available for Developing Countries under affordable conditions, via a not for profit organization named *IntellectuAll* (www.intellectuall.org). (b.mons@I-research.org)*

Brief comments on Open Access Developments in the US

HELEN DOYLE (co-organiser), Director of Development and Strategic Alliances, Public Library of Science, San Francisco USA

As the Public Library of Science prepares to launch its second open access journal, *PLoS Medicine*, in October, we are pleased to note that an Appropriations Committee of the United States House of Representatives is considering a provision that would provide free access to articles funded by the National Institutes of Health by requiring their deposition in PubMed Central, a single, centralized, free-to-use archive managed by the National Library of Medicine. We are encouraged that this effort to make the results of publicly funded research freely available will ultimately have profound benefits for the general public, for scientists, and for science itself.

As Director of Development and Strategic Alliances at PLoS, Helen is responsible for fund-raising and developing partnerships and collaborations with organizations that share PLoS's mission to open up access to the scientific and medical literature. Prior to joining PLoS, Helen was Director of the Science Program at the David and Lucile Packard Foundation, where she developed and managed grant-making programs in academic research, higher education and diversity, and science and technology for international development. Helen received a B.A. in biochemistry from Barnard College and a Ph.D. in biological sciences from Columbia University. She was a post-doc at the Max Planck Institute for Developmental Biology in Tübingen, Germany and at the University of California, San Francisco. Following her post-doc, Helen has also worked extensively in science education at the pre-college level and taught biology courses at various institutions. (hdoyle@plos.org)

General discussion to be facilitated by Jan Velterop, BioMed Central.

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